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Taylor, Andrew

Experiential learning in 3D technologies : A presentation of reflective student narratives

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Experiential learning in 3D Technologies :

A presentation of reflective student narratives

University funded teaching & learning research project. *Part 1:*
Research Teaching Nexus:

Presented at School Of Art, Design & Architecture Teaching & Learning
Conference University Of Huddersfield. January 9th 2013.

Andrew Taylor
a.taylor2@hud.ac.uk

Senior Lecturer
Fashion & Textiles
School of Art, Design & Architecture
University Of Huddersfield

ABSTRACT:

The focus is to present the final phase of a University teaching and learning funded research project.

'Experiential learning of 3D digital technologies: A presentation of reflective student narratives.'

The aim of the session is to share my experiences of doing practitioner research in art and design education and the importance of being open to the emergence of *being and things*.

A research practitioner approach is introduced through which to explore the value of 3D digital technologies for Textiles/Surface Art & Design courses.

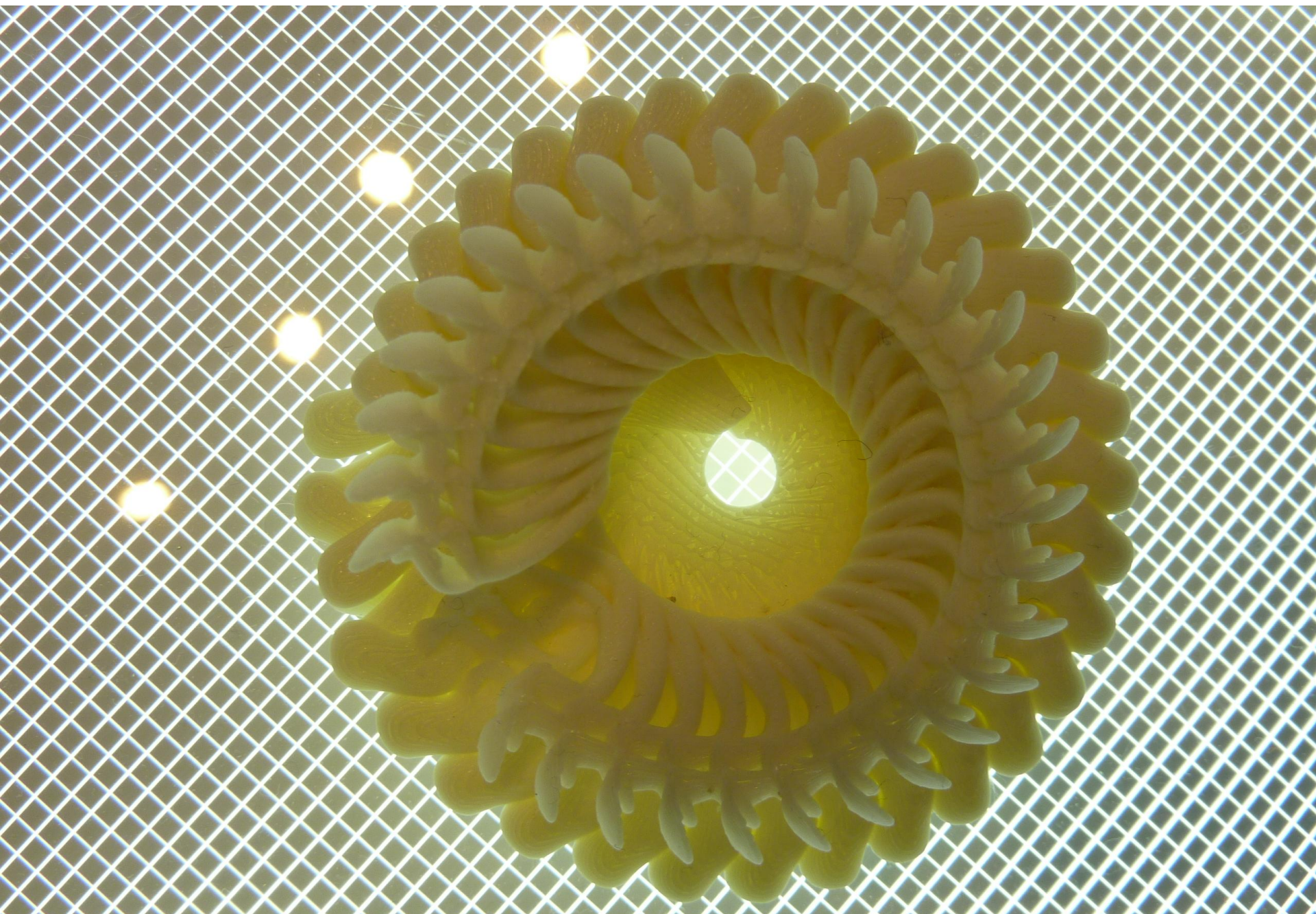
This collection of research data presents recorded phenomena about how a small group of final year BA (Hons) Surface Design with Fashion & Interior students, experienced beginning new directions in practice using 3D technologies for the first time.

A student-focused collection of documented data: video narrative, virtual and physical learning materials, artefacts, prototypes, and experiences have been gathered through a series of workshops and exhibitions and will be presented and reflected upon during the session.

Shereen Ahmed: BA(Hons) Surface Design with Fashion & Interiors graduate 2011.

3D printed concept development for lighting product design: Exhibited at Surface Design show, Business Design Centre, London. February 2011.

<http://www surfacedesignshow.com/> <http://shereenahmed.wix.com/mainpage>



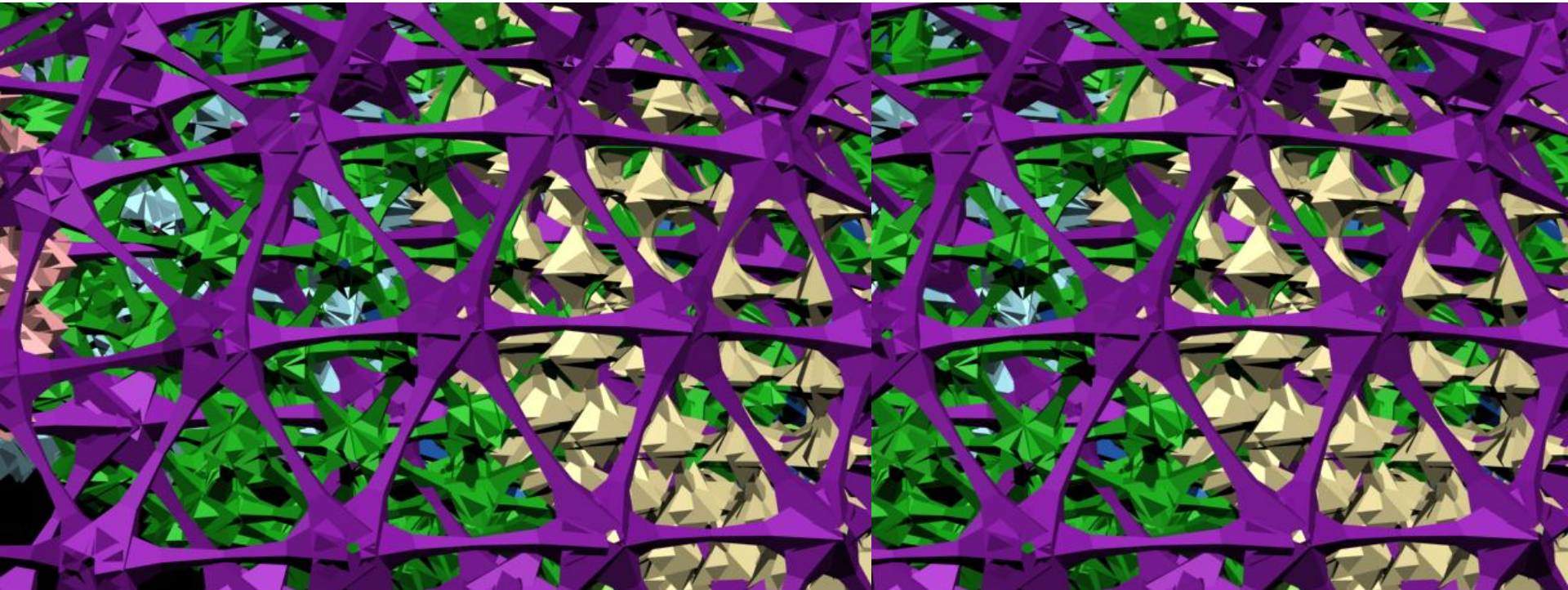


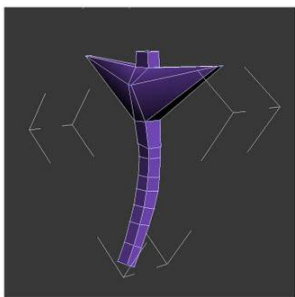
What product development technologies are coming in the future?

What's the future of rapid prototyping and 3D printing?

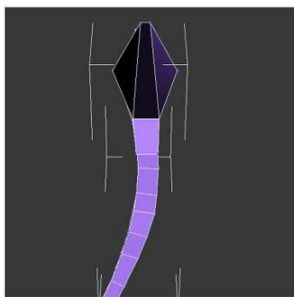
Research questions to be explored during the T&L project are:

- What value can 3D CG software and hardware add to conventional/traditional methods of Fashion, Textiles, Surface Design and what evidence exists to support their use in concept and production of the future ?
- What pedagogies and approaches are needed to make the use of 3D technologies most effective in practice and what evidence exists to support such approaches in Art & Design practice ?
- What innovative learning methods or tools can be developed to support the effective, engaging and transformative application of 3D Technologies in Fashion & Textiles and the School of ADA ?

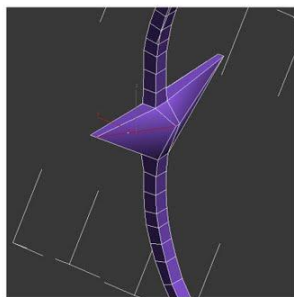




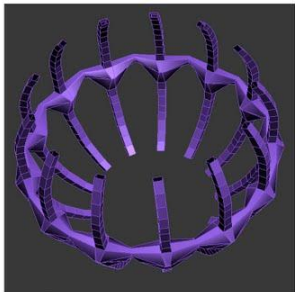
Center piece and bottom rib



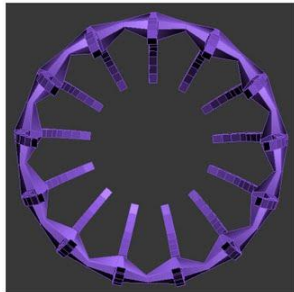
Side view



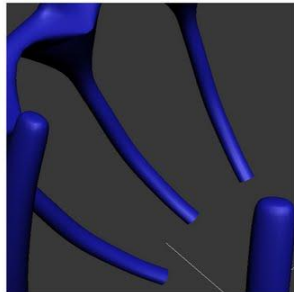
Single created piece



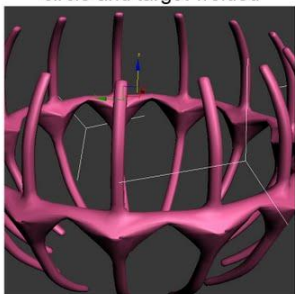
1st Single piece aligned to form circle and target welded



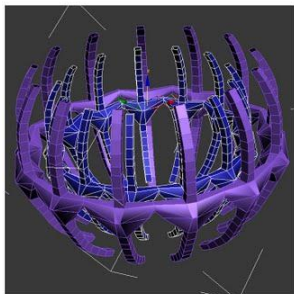
View from top



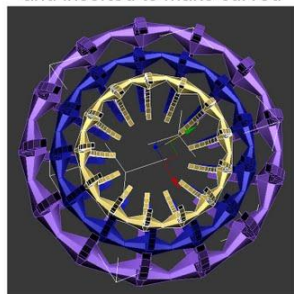
2nd piece - each end extruded and inserted to make curved



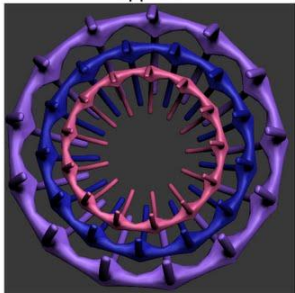
3rd piece - Turbosmooth applied



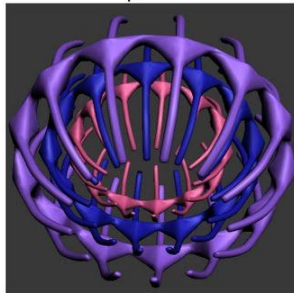
2nd piece placed inside 1st piece



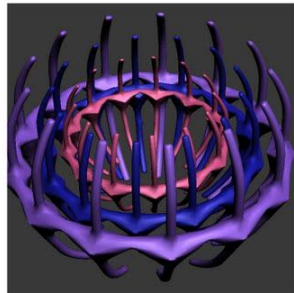
3rd piece added - view from top



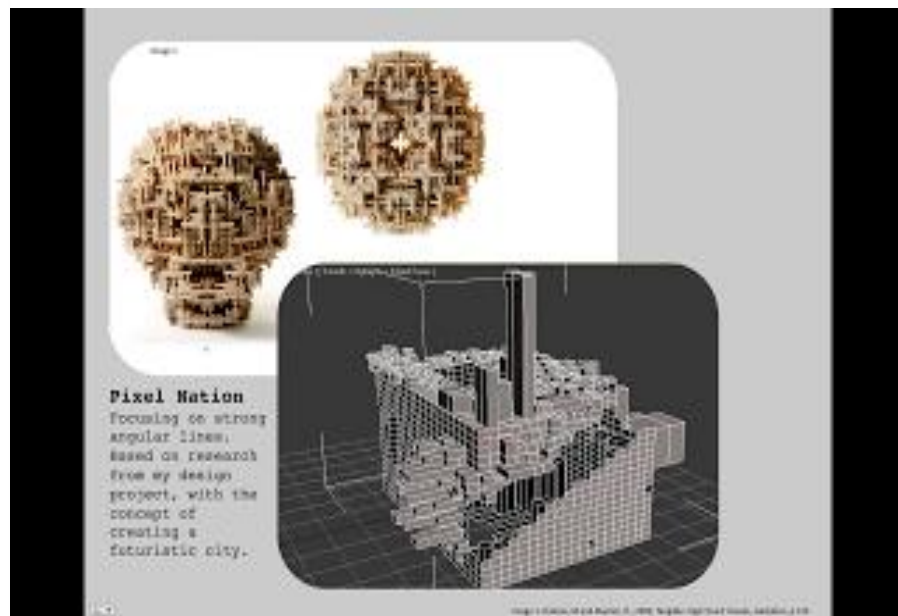
All 3 pieces - not attached - turbosmooth applied



View from underneath



View of side from top



EXPLORE

EXPERIENCE

EMERGENCE

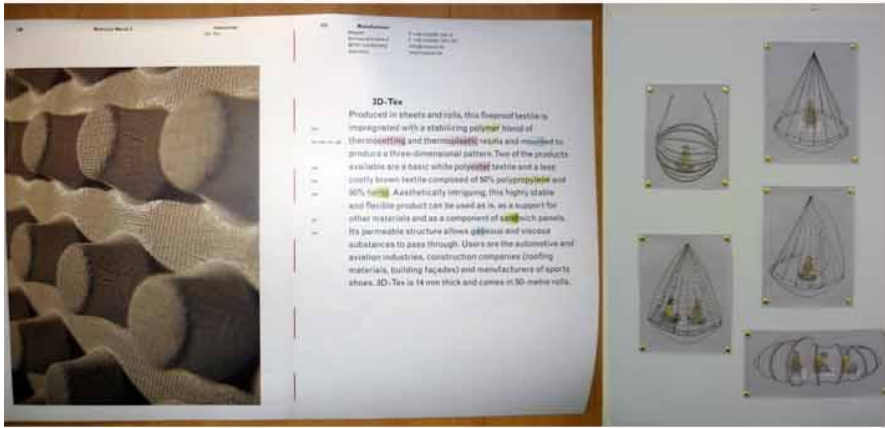
EXHIBIT

EXPLORE

EXPERIENCE

EMERGENCE

EXHIBIT



Exploratory phase photographic data recorded of BA (Hons) Textile Design, Surface Design & Textile Craft student's art and design practice and examples of close by contextual and conceptual references displayed in and around the Textiles subject area studios



Exploratory phase photographic data recorded of BA (Hons) Textile Design, Surface Design & Textile Craft student's art and design practice and examples of close by contextual and conceptual references displayed in and around the Textiles subject area studios



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Exploratory phase photographic data recorded of BA (Hons) Textile Design, Surface Design & Textile Craft student's art and design practice and close by examples of contextual and conceptual references displayed in and around the Textiles subject area studios.

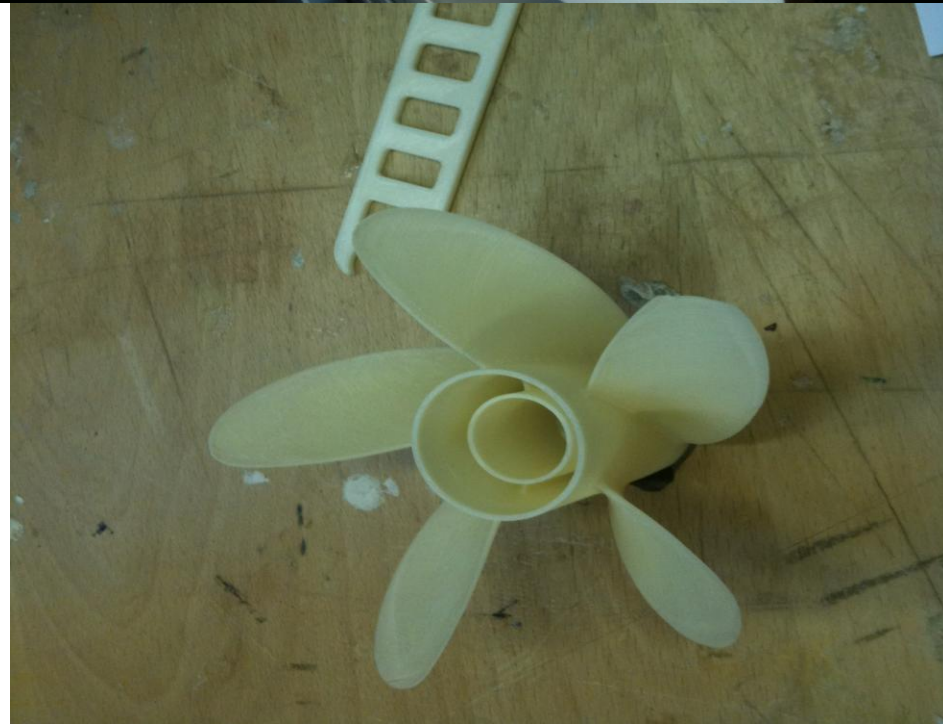
EXPLORE

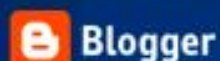
EXPERIENCE

EMERGENCE

EXHIBIT

	T1 CAD	T1 CAD	T1 CAD	Ramsden Workshop RW1
<i>2-4 :learning 4-5: reflective</i>	Friday 21 Jan - 2- 5	Friday 28 Jan - 2- 5	Friday 4 Feb - 2- 5	7/ 8/ 9/ Feb.
<i>2.00 -2.15</i>	Briefing on 3D workshop for SD	3D demo /Tutorials	3D Sample development	3D RP print files - samples(RW) RW workshop
<i>2.15 – 3.00</i>	3D demo /Tutorials	3D demo /Tutorials	3D Sample development	3D RP print files - samples(RW) RW workshop
<i>3.10 – 4.00</i>	3D demo /Tutorials	3D Sample development	3D Sample development	3D RP print files - samples(RW) RW workshop
<i>4.00 - 5.00</i>	Record/reflect on Learning and 3D practice/material	Record/reflect on Learning and 3D practice/material	Record/reflect on Learning and 3D practice/material	3D RP print files - samples(RW)
<i>WEEK 1- 3 2hours max:</i>	Individual 3D learning development	Individual 3D learning development	Individual 3D learning development	
<ul style="list-style-type: none"> <i>Your 3D thinking notes and ideas, sketches etc. are essential research data which will be gathered with your consent for use at the SD show and future research publication.</i> <i>Please bring a dedicated notebook for recording your 3D thinking notes and ideas, sketches etc..</i> <i>Please bring concept sketches and 3D reference images of sample ideas to workshop. These reflective notebooks will support your Individual 3D learning development time in week 1-3.</i> <i>Please bring your headphones to each CAD workshop as you will need to listen to video learning tutorials in week 1 -3 . Check (before Friday) that your headphones fit into IMAC sockets in T1 CAD.</i> 				





Push-Button Publishing

Andrew has invited you to contribute to the blog

Extraordinary-3D-Materials Testing Station

<http://extraordinary-3d-materials.blogspot.com/>

To join this blog as an author, accept the invitation by signing in with your **Google** Account below.

Do you not have a Google Account? [Create your account now](#)

Username (Email)

⚠ Required field must not be blank

Password

⚠ Required field must not be blank

[Forgot your password?](#)

Remember Me?

☐

This is not recommended
for shared computers!

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Internet

100%

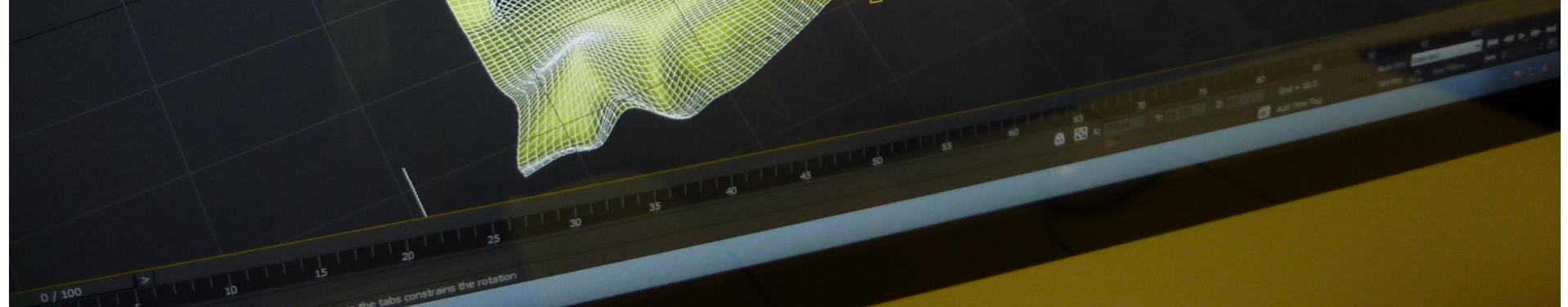
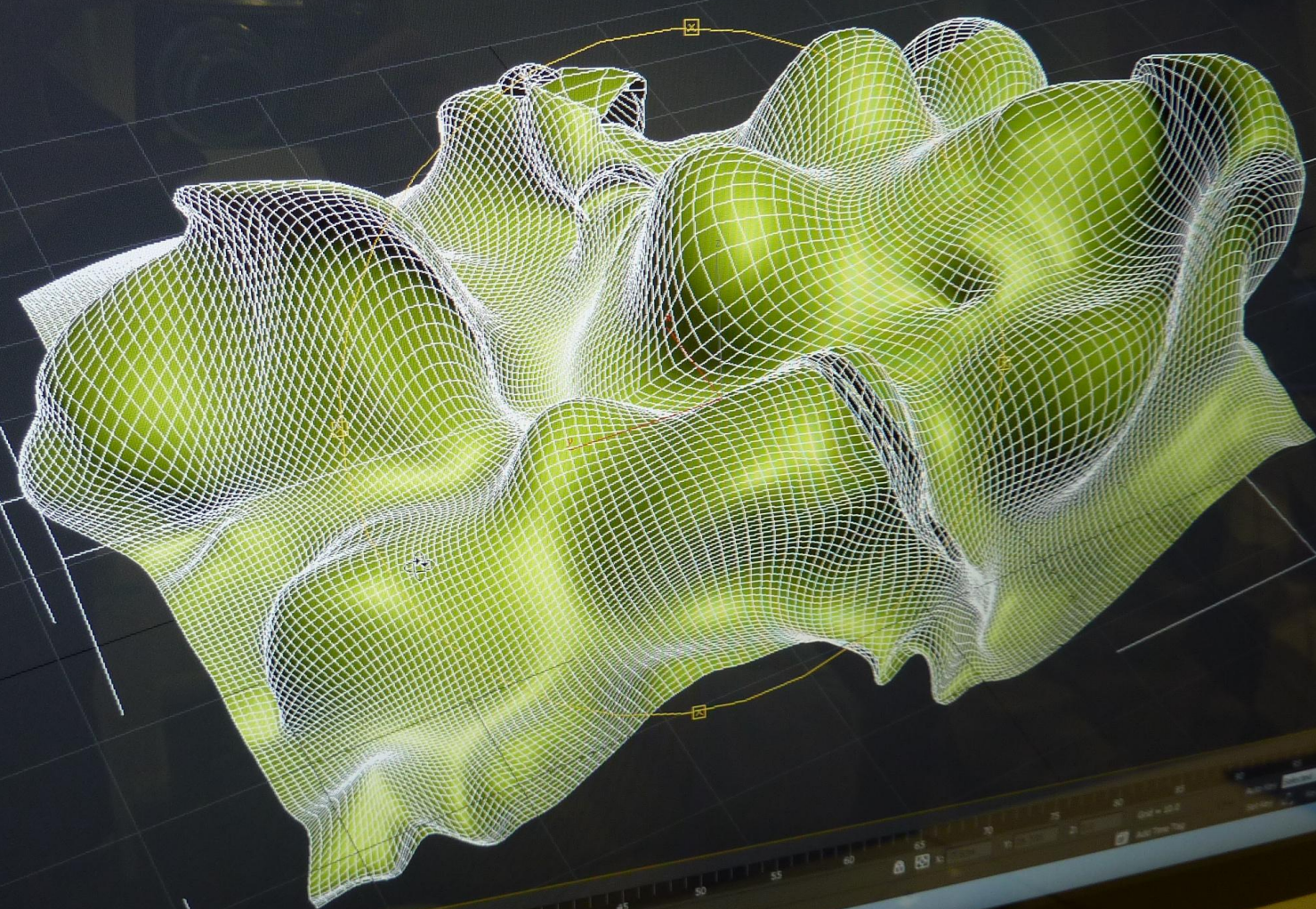
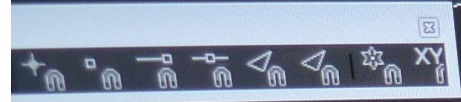
DATA COLLECTION SPACE:

STUDENT AUTHORED RESEARCH BLOG

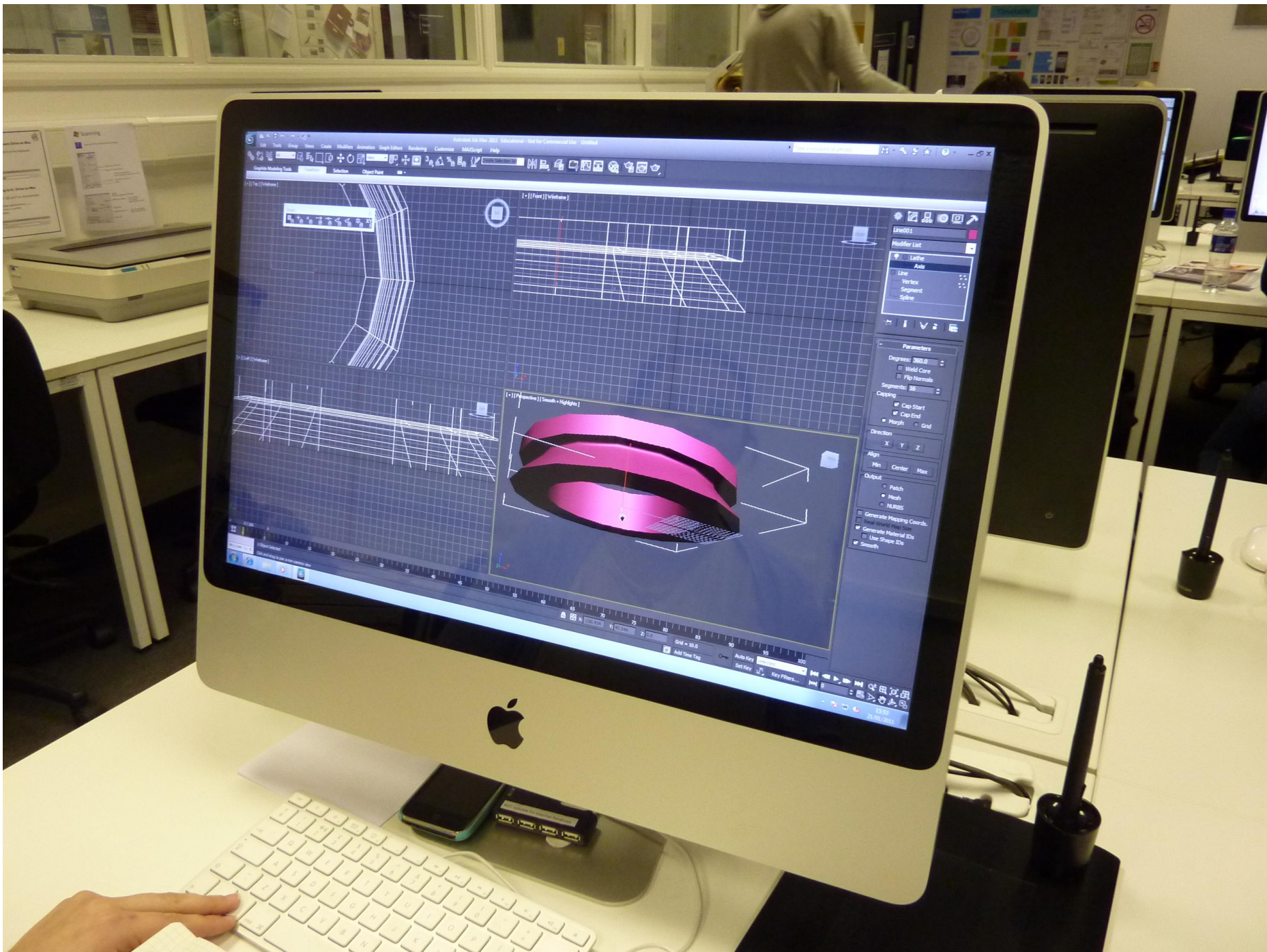
<http://extraordinary-3d-materials.blogspot.co.uk/>



+ Edged Faces]

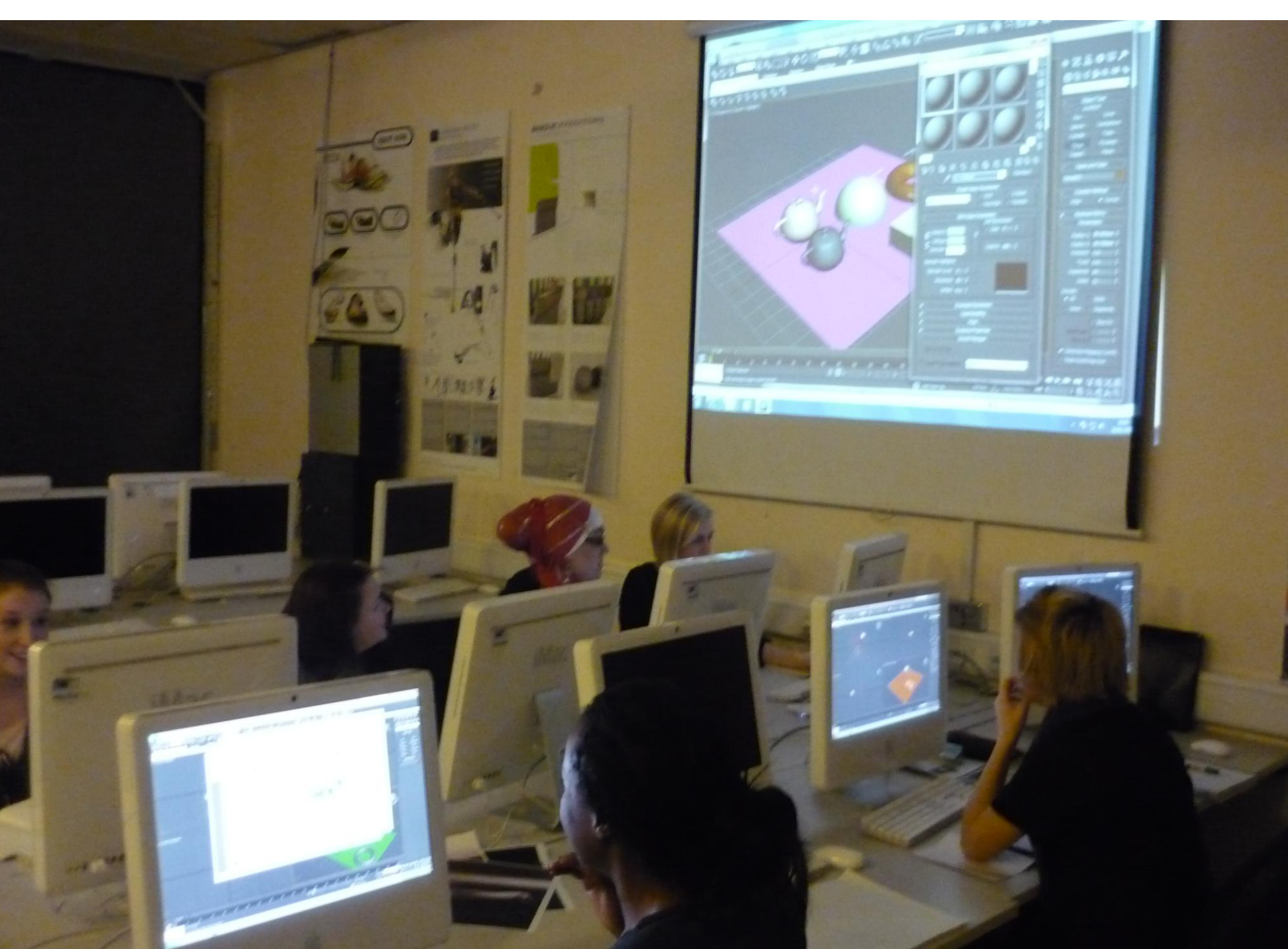












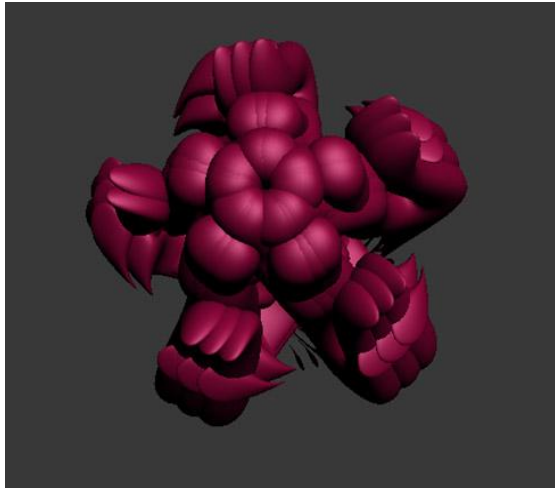
EXPLORE

EXPERIENCE

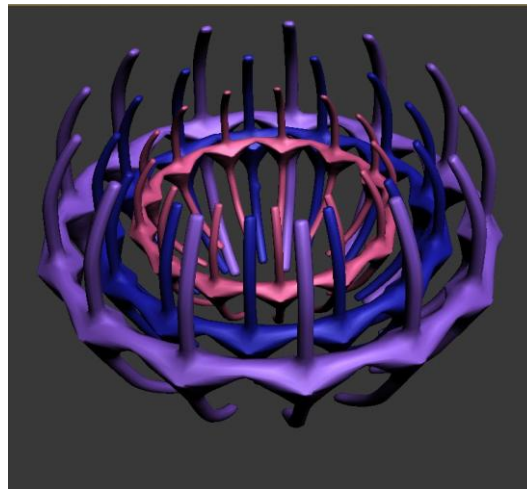
EMERGENCE

EXHIBIT

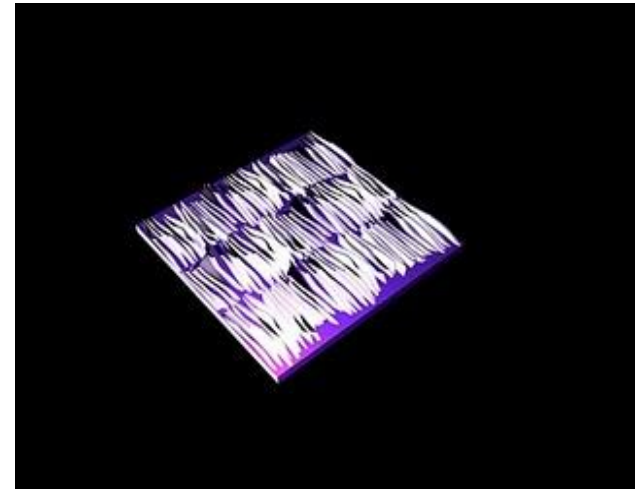




Shereen Ahmed



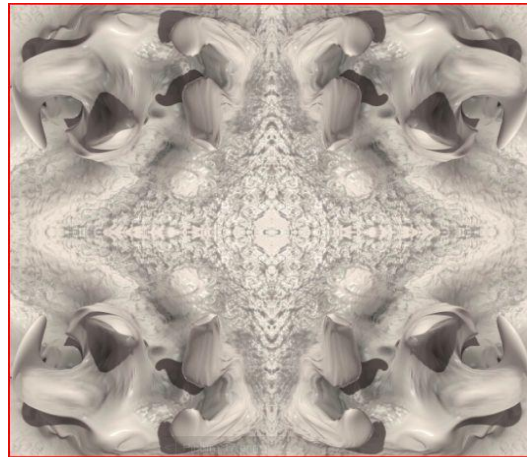
Vicky Kelly



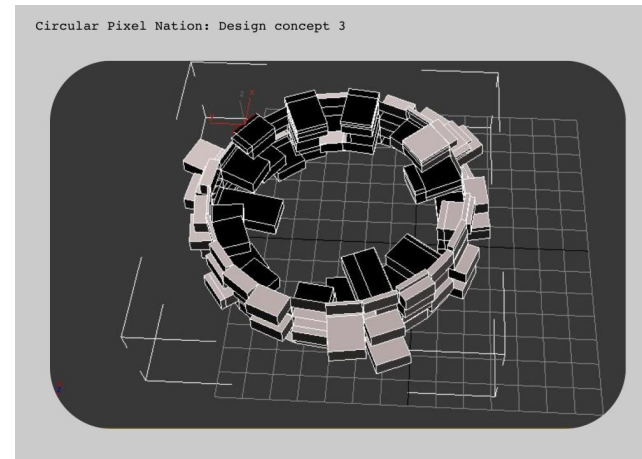
Michelle Tickle



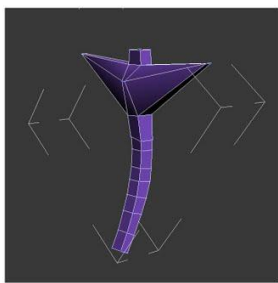
Isobel Smith



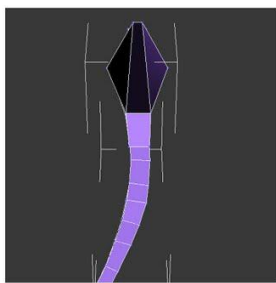
Danielle Riley



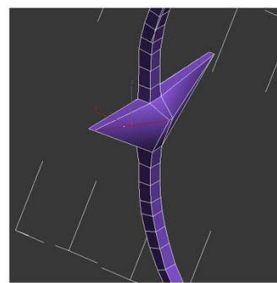
Sinead McGreevy



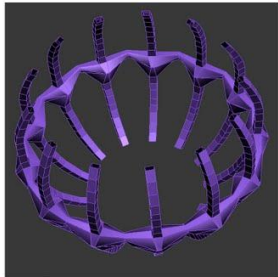
Center piece and bottom rib



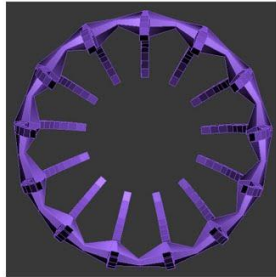
Side view



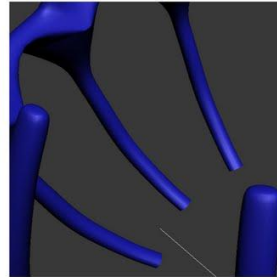
Single created piece



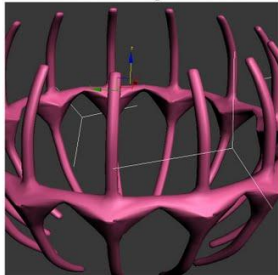
1st Single piece aligned to form circle and target welded



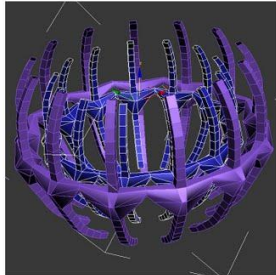
View from top



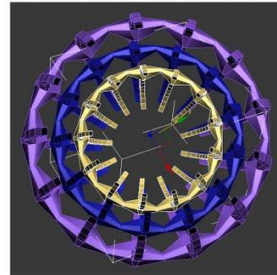
2nd piece - each end extruded and inserted to make curved



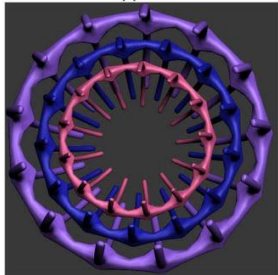
3rd piece - Turbosmooth applied



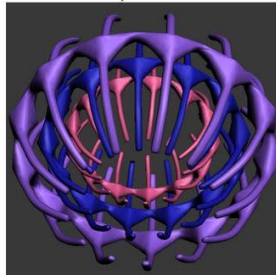
2nd piece placed inside 1st piece



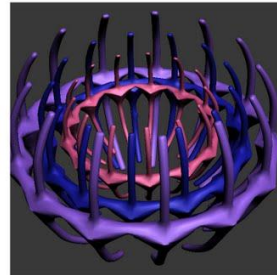
3rd piece added - view from top



All 3 pieces - not attached - turbosmooth applied



View from underneath



View of side from top

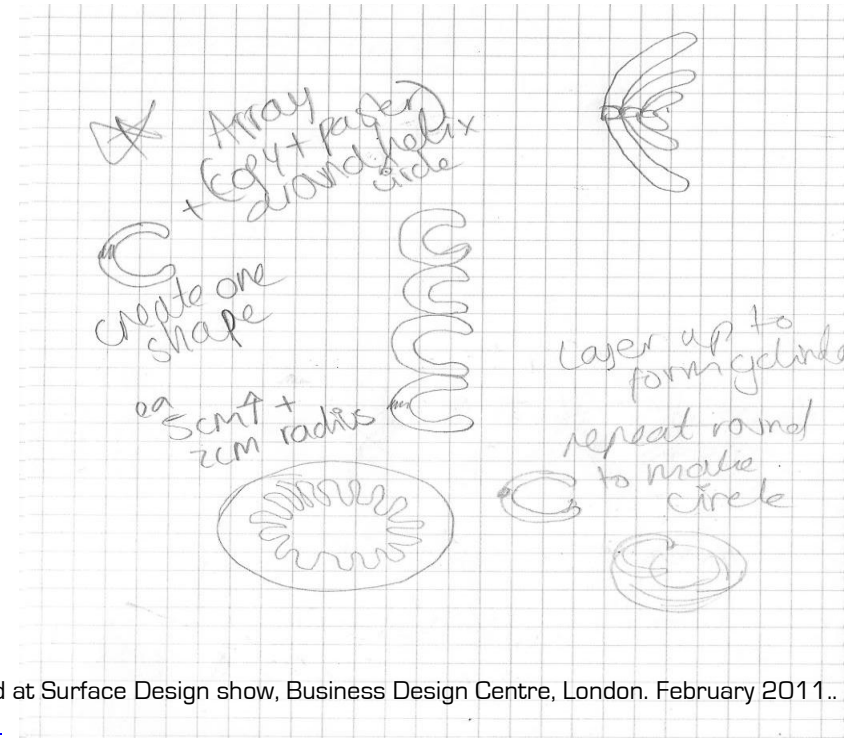
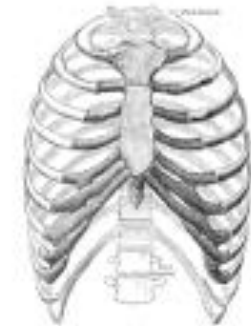
Inspired by



Bone Structures
(Dinosaur and humans)

Geometric tessellations

Organic Bio-matter



Vicky Kelly BA(Hons) Surface Design with Fashion & Interiors graduate 2011.

Ideas Sketchbook & 3D printed concept development for Architectural Sculpture: Exhibited at Surface Design show, Business Design Centre, London. February 2011..

<http://surfacedesigner.wix.com/victoriakelly>

<http://www.surfacedesignshow.com/>

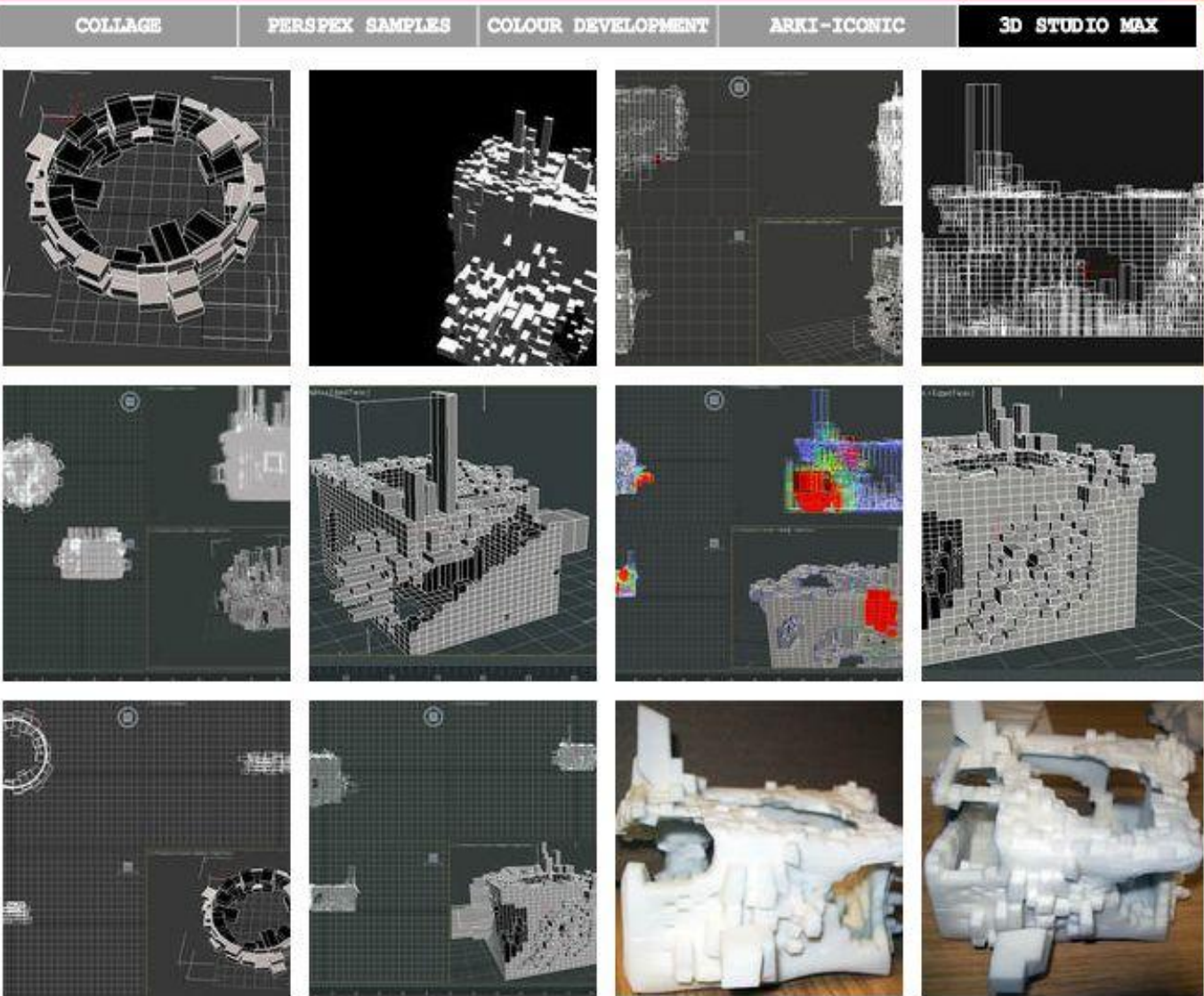
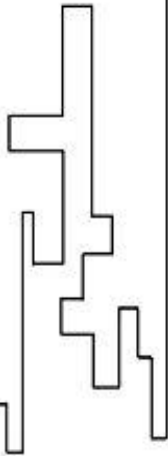
Sinead McGreevy: BA(Hons) Surface Design with Fashion & Interiors graduate 2011.

3D printed concept development for lighting product design: Exhibited at Surface Design show, Business Design Centre, London.

February 2011 <http://www.sineadmccreevy.co.uk/> . <http://www surfacedesignshow.com/>

Surface Designer

I
N
E
A
D
M
C
G
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E
E
V
Y



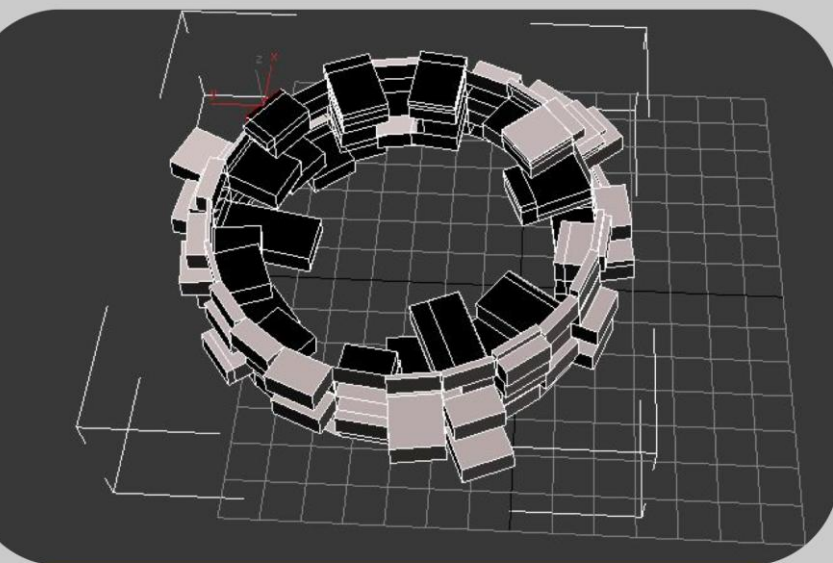
As part of a research within the university I learnt how to use 3Ds Max to create a Rapid Prototype exhibited at the Surface Design Show '11. Please click this text to access the blog associated with this project.



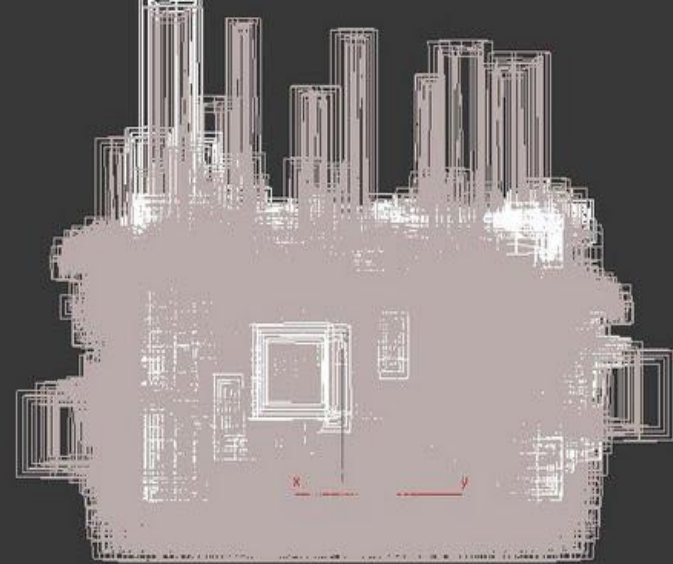
Really inspired by the work of Keith Tyson called 'Fractal Dice', Tysons forms and shape would seem to lend themselves brilliantly to 3ds Maxx.

Images 1&2: Tyson, K., *Geometry, M. & Pavesich, M.*, 2004, *Formal Dice*, New York, Reinhold Books.

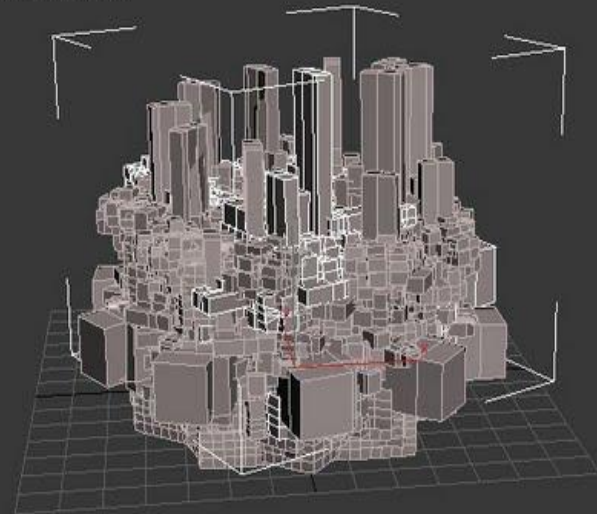
ular Pixel Nation: Design concept 3

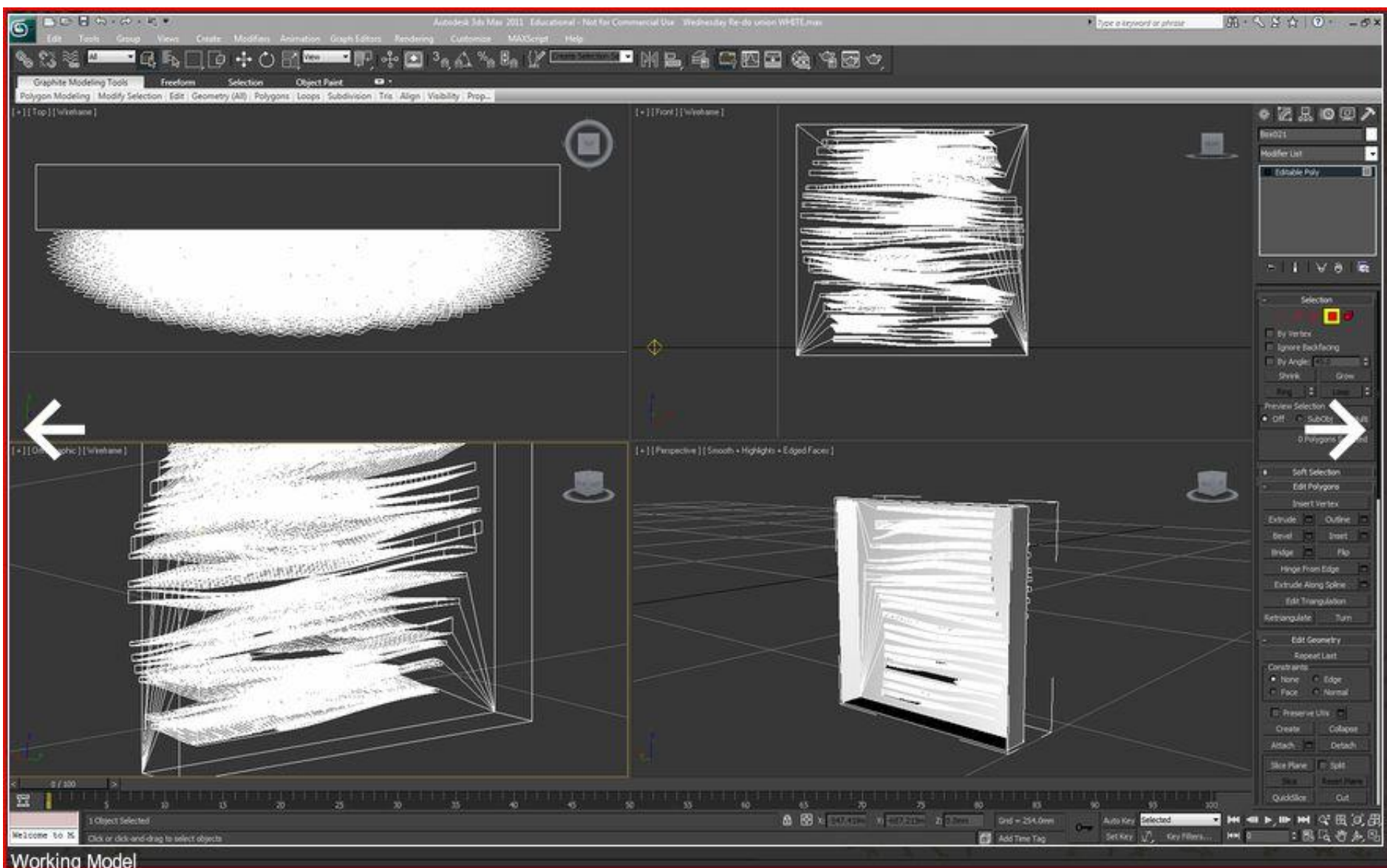


[+] [Orthographic] [Wireframe]



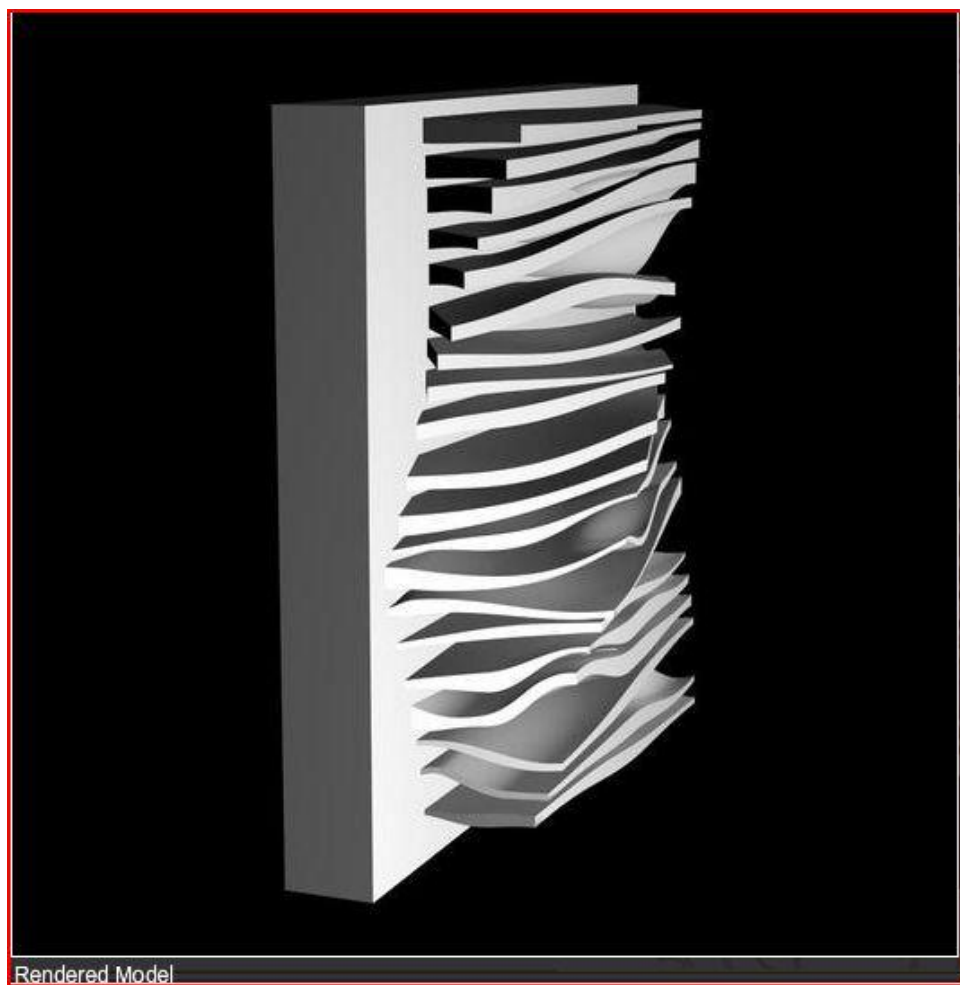
[+] [Perspective] [Smooth + Highlights + Edged Faces]





Michelle Tickle: BA(Hons) Surface Design with Fashion & Interiors graduate 2011.

3D polygon modelling development for Interior design - Shape memory feature wall: Exhibited at Surface Design show, Business Design Centre, London. February 2011 <http://michelleltickle.wix.com/online-portfolio>. <http://www surfacedesignshow.com/>



Michelle Tickle: BA(Hons) Surface Design with Fashion & Interiors graduate 2011.

3D modelling & animation & Interior design visual shape memory feature wall: Exhibited at Surface Design show, Business Design Centre, London. February 2011 <http://michelleltickle.wix.com/online-portfolio>. <http://www surfacedesignshow.com/>



Picture by u-JU

Isobel Smith - BA(Hons) Surface Design with Fashion & Interiors graduate 2012. Laser cut acrylic geometric sculpture for the body : Exhibited at Surface Design Show 2011 and Graduate showcase 2011, School of Art, Design & Architecture , University Of Huddersfield.
<http://izzymeister.wix.com/surface-designer#!bio>



Isobel Smith - BA(Hons) Surface Design with Fashion & Interiors graduate 2012. Laser cut acrylic geometric sculpture for the body : Exhibited at Surface Design Show 2011 and Graduate showcase 2011, School of Art, Design & Architecture , University Of Huddersfield.
<http://izzymeister.wix.com/surface-designer#!bio>

THE PROCESS

FINISHED FABRICS

DIGITAL PRINTING

TESTING

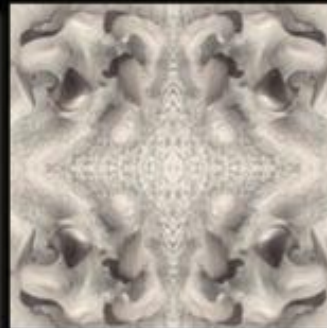
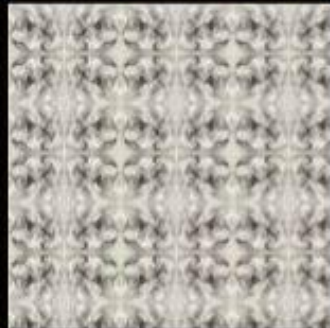
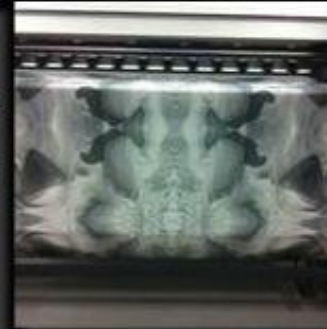
PHOTOSHOP

MUDBOX

3DS MAX

POLYMORPH

HAND MODELING



◀ 1/2 ▶

DANIELLE RILEY - Surface Designer / Trend predictor for fashion & interiors.
Contact No: 07508047816. Email: danielleriley.design@gmail.com



THE PROC

FINISHED FABRICS

DIGITAL PRINTING

TESTING

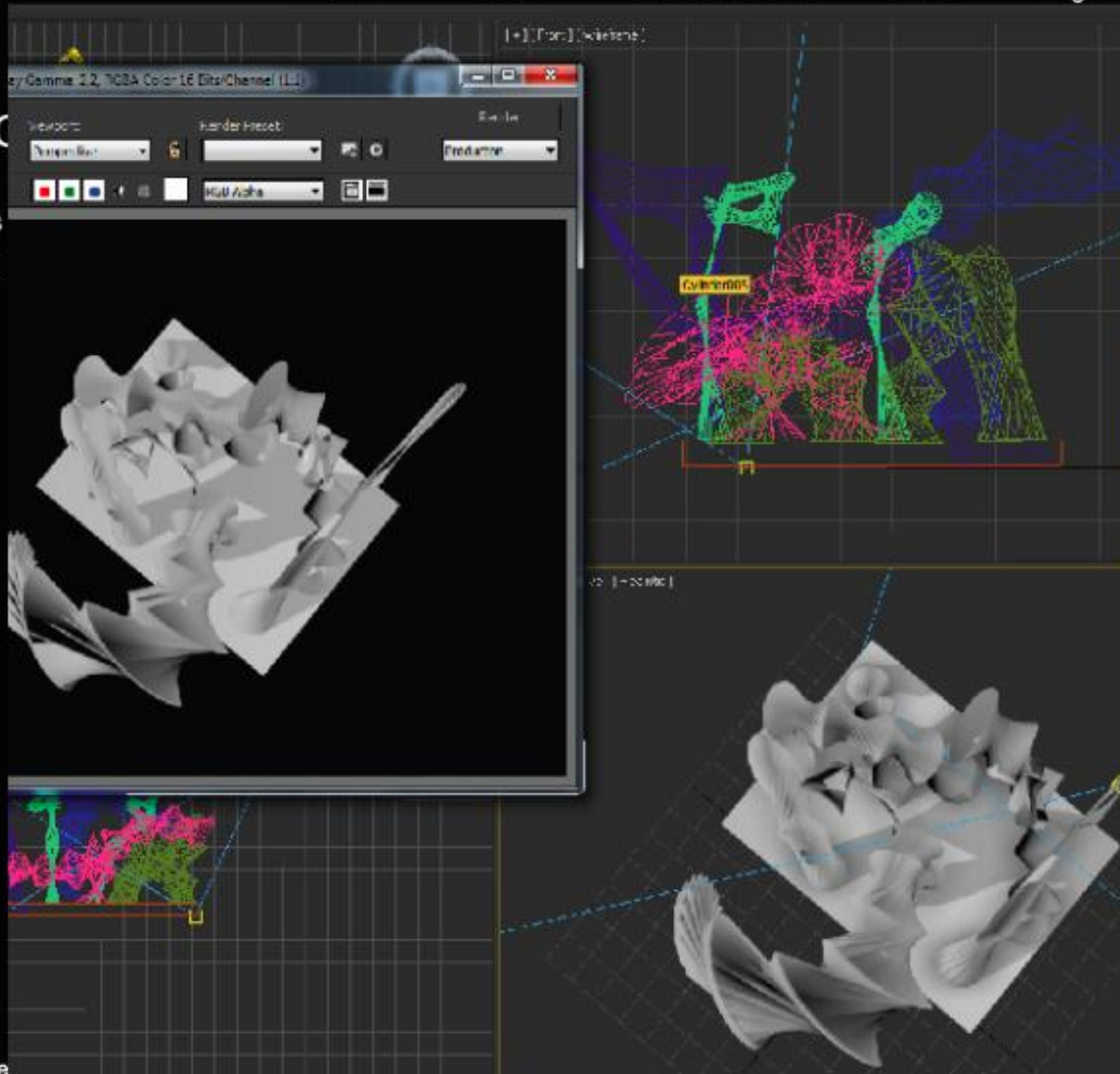
PHOTOSHOP

MUDBOX

3DS MAX

POLYMORPH

HAND MODELING



DANIELLE RILEY - Surface De
Contact No: 07508047816. Email: danielleriley.design@gmail.com

< Picture 15.png >



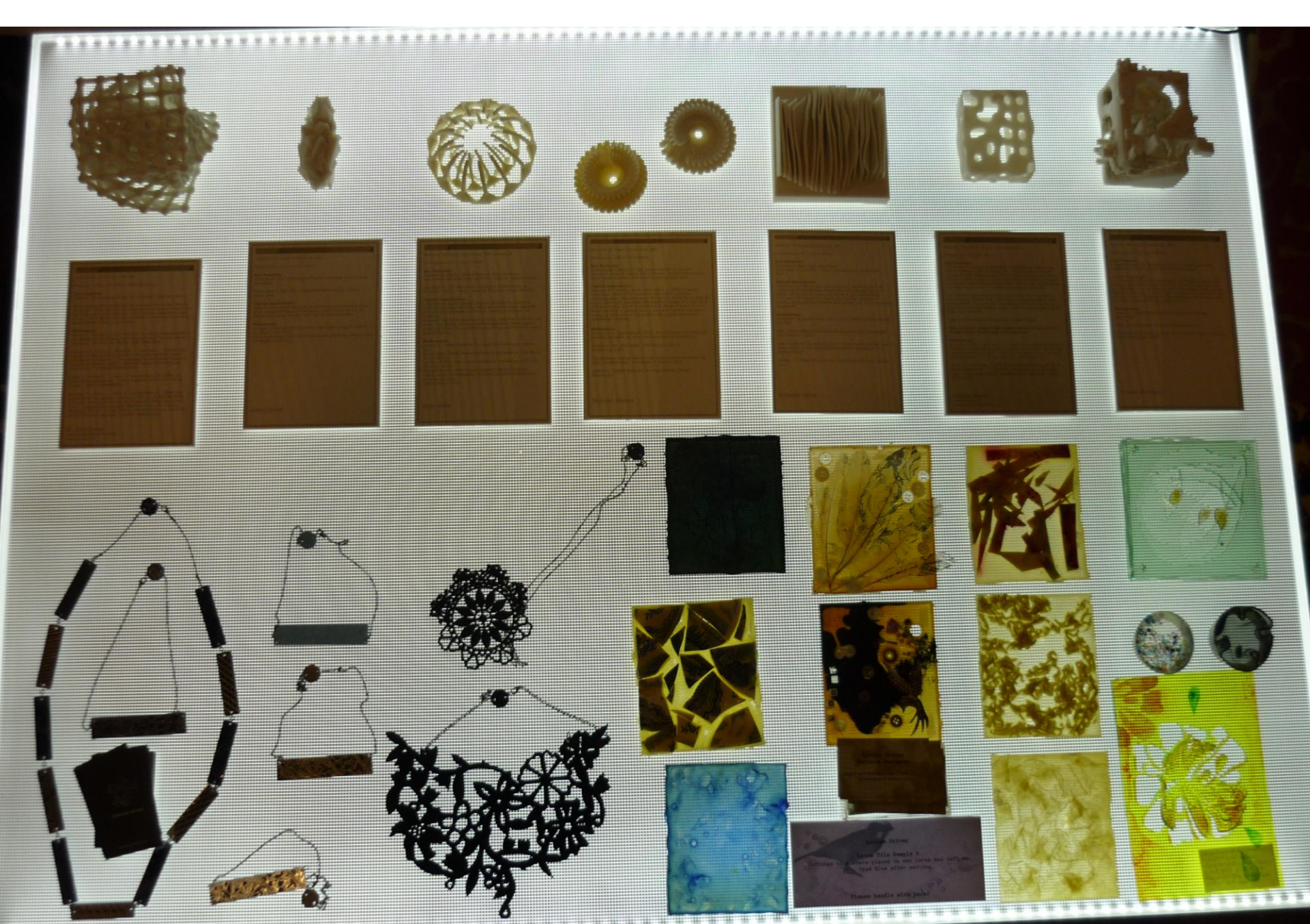
EXPLORING
EXPERIENCING
EMERGENCE
EXHIBIT



University of Huddersfield BA(Hons) Surface Design for Fashion & Interiors stand at *Surface Design Show 2011*: Exhibiting the Extra-ordinary Materials Testing Station



University of Huddersfield BA(Hons) Surface Design for Fashion & Interiors stand at *Surface Design Show 2011*: Exhibiting the Extra-ordinary Materials Testing Station



University of Huddersfield BA(Hons) Surface Design for Fashion & Interiors stand at *Surface Design Show 2011*: 3D Material Prototypes exhibited on LED light sheet.

<http://www.ledlightsheet.co.uk/> <http://extraordinary-3d-materials.blogspot.co.uk/>

Material research criteria:

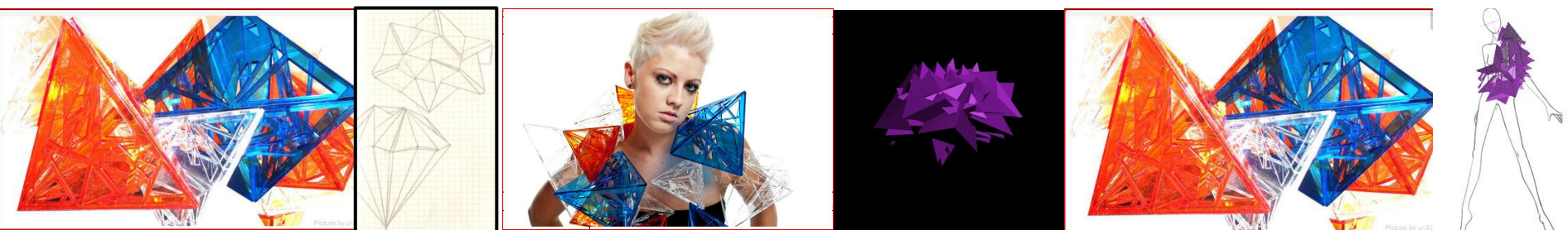
Isobel Smith - BA(Hons) Surface Design with Fashion & Interiors graduate 2012.

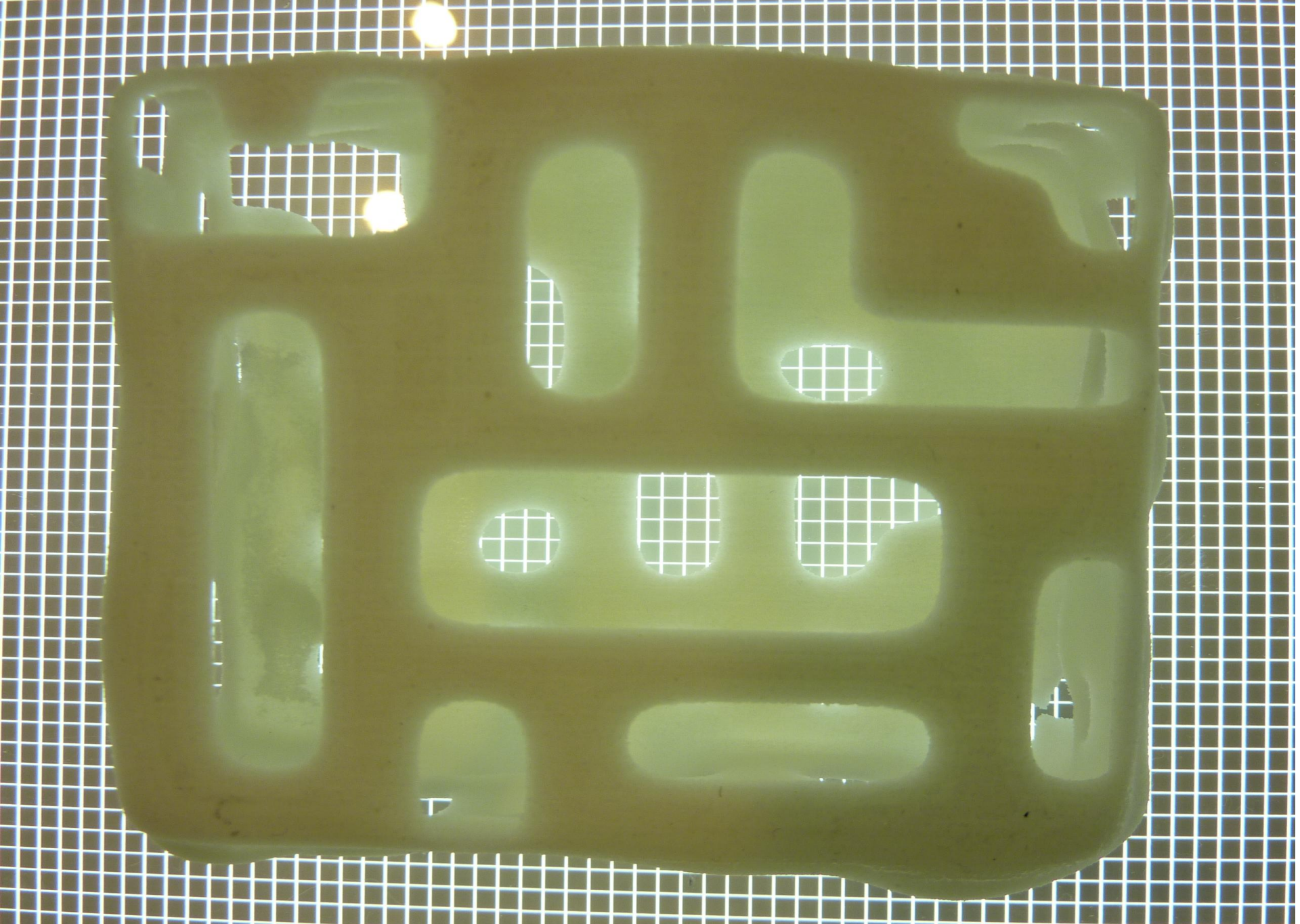
Laser cut acrylic geometric sculpture for the body :

Exhibited at Surface Design Show 2011 and Graduate showcase 2011, School of Art, Design & Architecture , University Of Huddersfield.

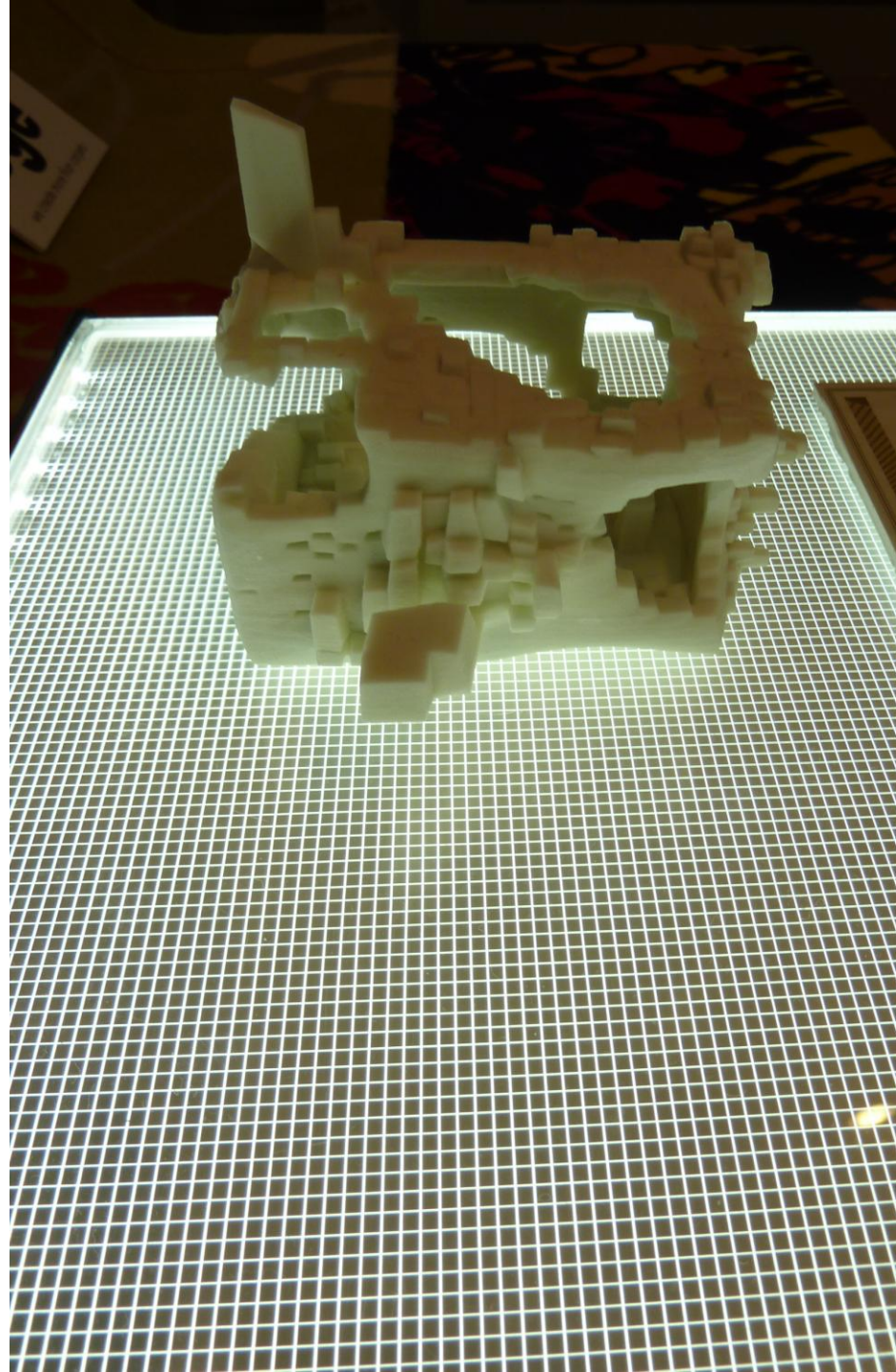
<http://izzymeister.wix.com/surface-designer#!bio>

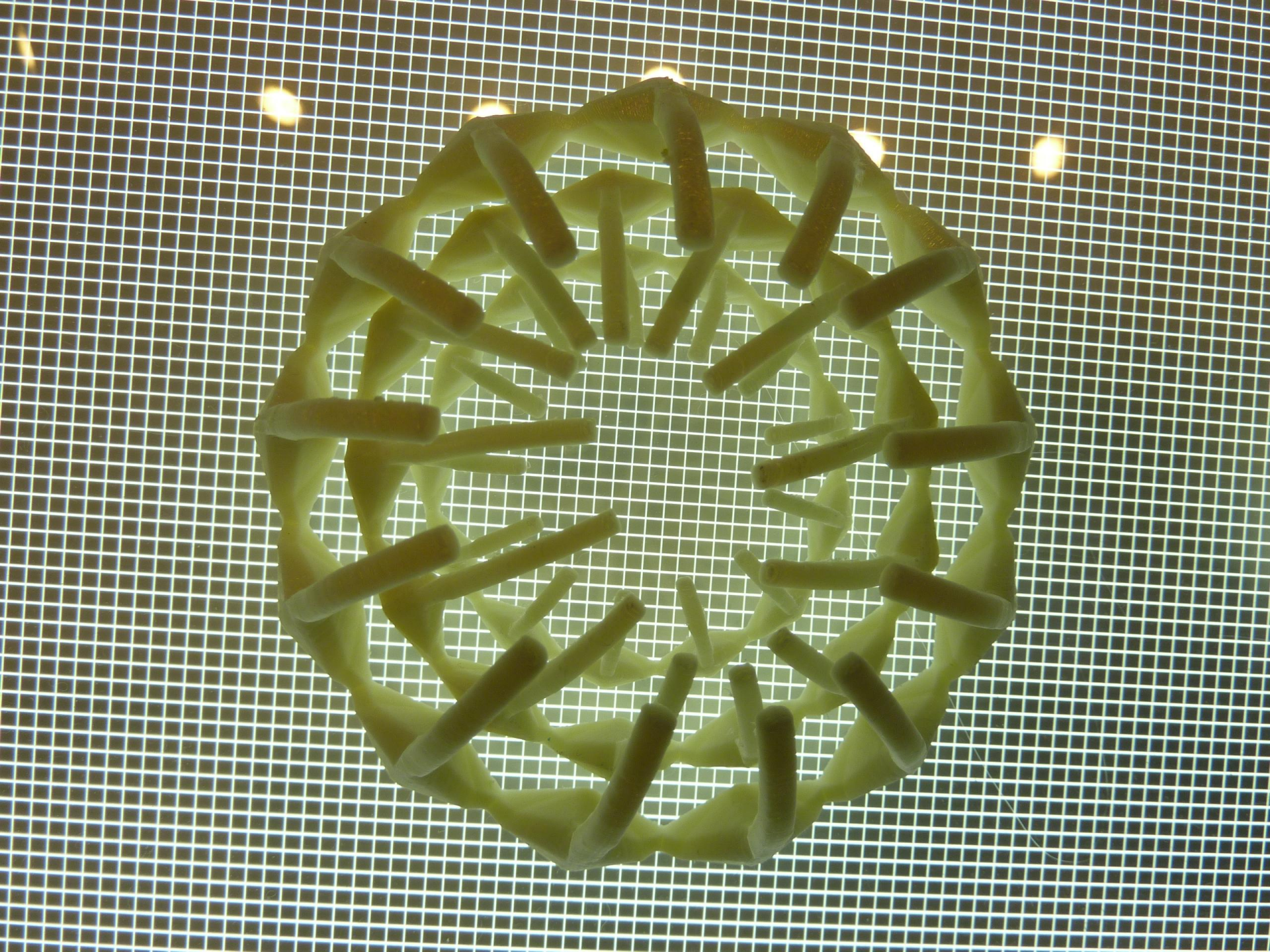
- **Prototype Dimensions :**
- 120 x 120 x 25mm
-
- **Material :**
- 3D Rapid Prototyping, ABS
-
- **Key Features:**
- Inspiration from the designer Hussein Chalayan and Origami structures
-
- Tools used in 3DS MAX – *Shapes-Pyramid, Array, spacing , bend, twist*
-
- **Research References:**
- Origami in fashion- <http://xorsyst.com/japan/origami-fashion> [accessed 11/2/2011]
- http://www.origamisources.com/origami_sightings_fashion.htm [accessed 11/2/2011]
-
- **Typical Application:**
- Fashion- extreme body piece, either used as a shoulder piece or an oversized brooch. Inspired by origami and radical 3D designers such as Gareth Pugh and Hussein Chalayan.





Research practitioner material artefact: : 3D modelling and Rapid Prototype by Researcher. Andrew Taylor.











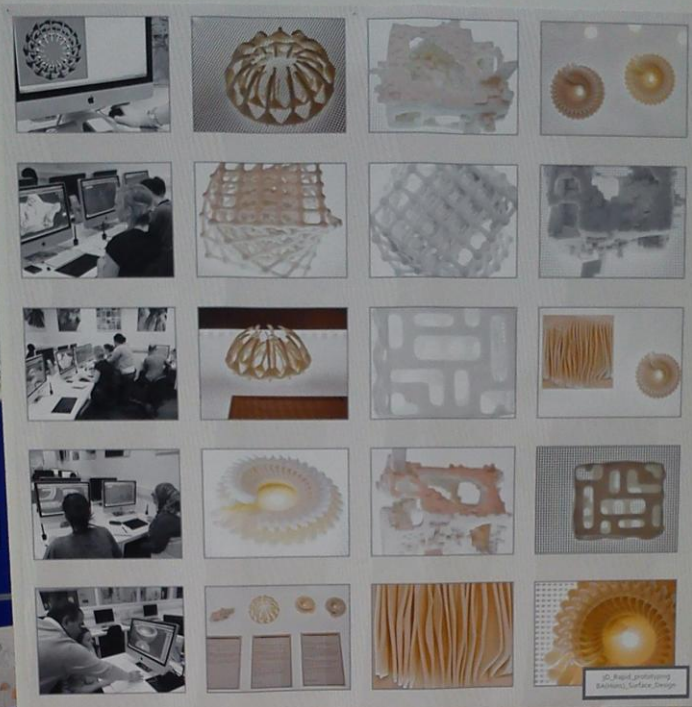
Shereen Ahmed: BA(Hons) Surface Design with fashion & Interiors graduate 2011.

Collection of 3D Rapid Prototypes & 3D Renderings for Lighting Concept Designs..

Exhibited at School of Art Design & Architecture, Graduate Exhibition, June 2011. @ University of Huddersfield,

<http://shereenahmed.wix.com/mainpage>

<http://extraordinary-3d-materials.blogspot.co.uk/>



Photography

There may be photographers and video staff taking footage and images for promotional purposes. If you do not wish to have your photograph or a video taken then please inform the photographer/video staff. Thank you

3D Materials Concepts & Visual Research Methodology :

A selected collection of BA(Hons) Surface Design student's 3D material samples, products, & reflective practitioner research experiences.

Exhibited at

'Living in a Material World' - Researcher's Night, 2011
@ University of Huddersfield, UK.

PART 2: University T&L Learning funded research project.

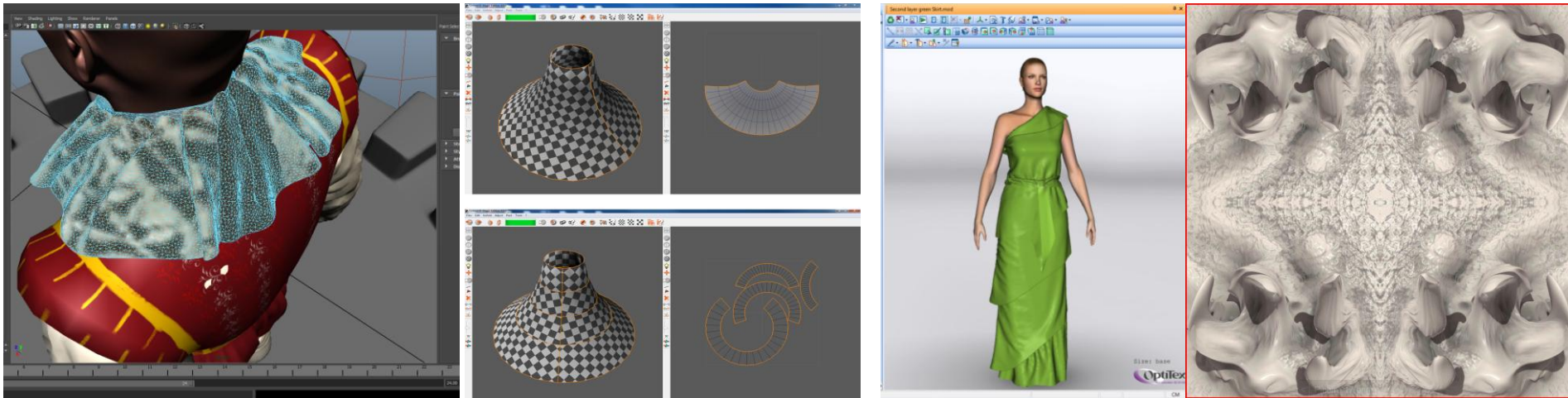
‘Experiencing 3D digital concepts, design and pattern construction’

A. Taylor, Dr. E.Unver, Barry Armstrong, Daniel Hughes, Argyroulla Argyrou, Geoff Ward, Alison Agnew

Abstract

The research paper documents the creative potential and integrated methods developed through using 3D digital sculpting, modelling and pattern design software for both Costume and Fashion design practitioners. This collaborative research was generated by 3D digital design researchers and educational industry technologists and attempts to explore and extend conceptual thinking and practice at the boundaries of Fashion and Costume.

The paper presents a series of experiential trans-disciplinary practice based experiments that record the approaches of the researcher's experiences using 3D software to explore and test digital drawing tools, to draft and cut 2D or 3D patterns from digitally sculpted materials and bodies. This paper also contributes to industry methodologies; developing new methods for extracting accurate 2D patterns from 3D digital sculpted objects in collaboration with Assyst Bullmer using 3D pattern design software provided by Optitex.



TO BE PRESENTED AT:

THE FIRST INTERNATIONAL SYMPOSIUM FOR CREATIVE PATTERN CUTTING

UNIVERSITY OF HUDDERSFIELD

-6TH TO 7TH FEBRUARY 2013

HUDDERSFIELD, YORKSHIRE, UNITED KINGDOM

THIS SYMPOSIUM WILL EXAMINE CREATIVE PATTERN CUTTING WITHIN CONTEMPORARY FASHION AND AIMS TO PROVIDE A PLATFORM FOR PATTERN CUTTERS, FASHION DESIGNERS, STUDENTS, AND EDUCATORS TO EXPLORE THE IMPACT AND DIRECTION FOR CREATIVE PATTERN CUTTING.

WEBSITE: [HTTP://WWW.HUD.AC.UK/CRICP/EVENTS/HEADLINE.36840.EN.PHP](http://www.hud.ac.uk/cricp/events/headline.36840.en.php)

**This final slide is to say a big thankyou for being interested in the research,
and for insight, demos, support, photography, encouragement and being there:**

TALI (University of Huddersfield Teaching & Learning Institute)

Dr. Ertu Unver: MA 3D Digital Design.

Jo Harris: BA(Hons) Surface Design with Fashion & Interiors Course Leader & MA Textiles Course Leader

Linda Lewis: Design Resource Co-ordinator

Simon Raines, Simon Dunning & Chris Charlesworth: Hard Materials Technical demo & support